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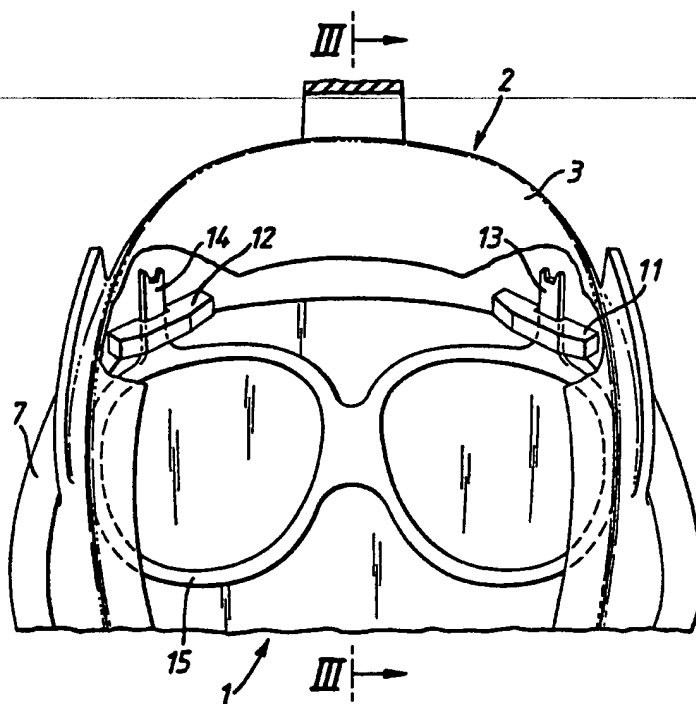
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None

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A5T
G2J
Selected US specifications from IPC sub-class A62B

(54) Respiratory full face mask

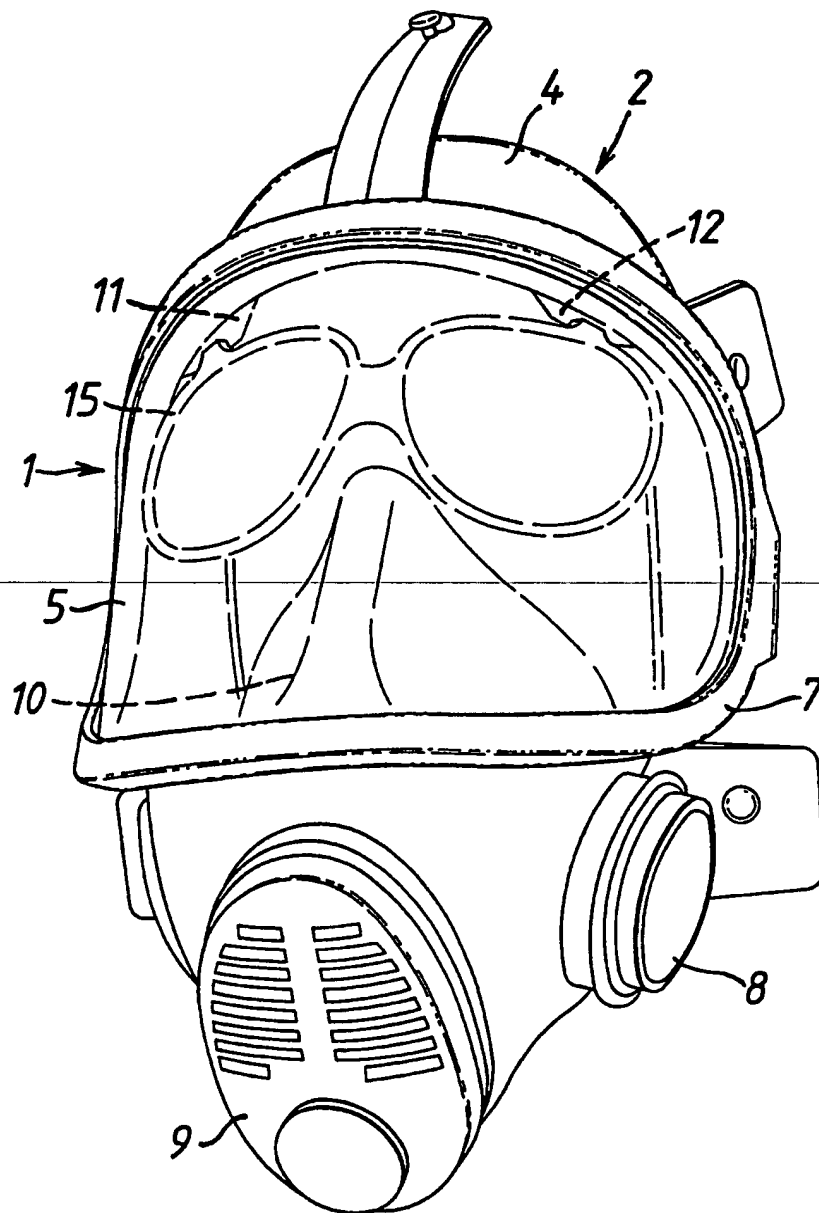
(57) The flexible outer face mask 2 of a respiratory full face mask 1 has an outer portion 4 which contains a visor 5 received and held in an aperture in the outer portion 4. An inner portion 3 of the flexible outer face mask 2 engages the head of the wearer in sealing engagement. A pair of flexible lugs 11, 12, each having a substantially vertical hole therein, are formed integrally with the outer portion 4 of the outer face mask 2 on a portion of the outer face mask 2 which holds the visor 5, so that the lugs 11, 12 are firmly positioned, at a position just above the visor 5. A pair of flexible lugs 13, 14 may be located in the full face mask 1 by inserting each upwardly extending arm 13, 14 in one lug 11 or 12. The spectacle frame 15 is then held in a position in which it does not distort the seal of the face piece on the inner portion 3, it is not moved when the mask 1 is put on, and the frame 15 is angled correctly for presentation to the eyes of the wearer of the mask 1.

FIG. 2.



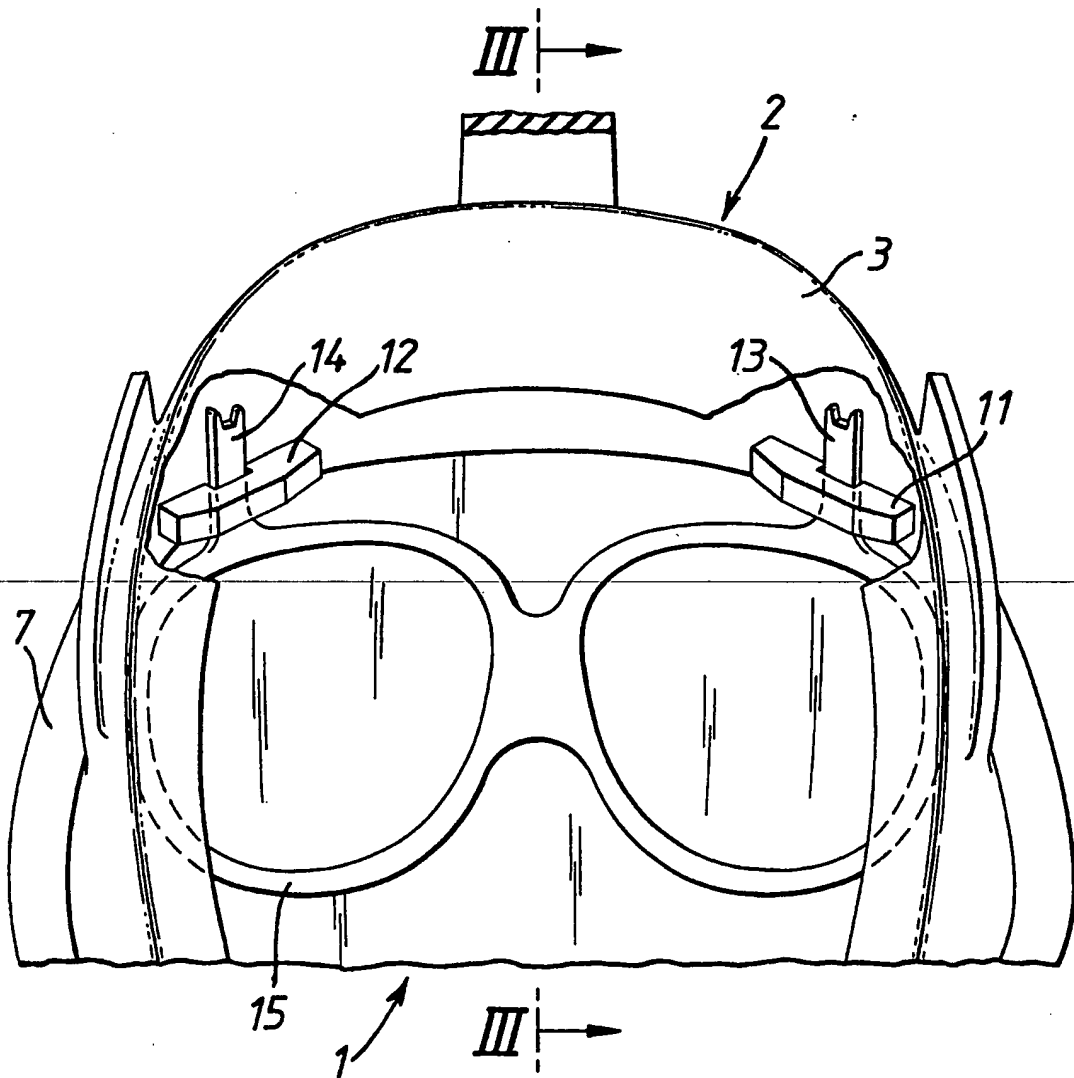
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FIG. 1.



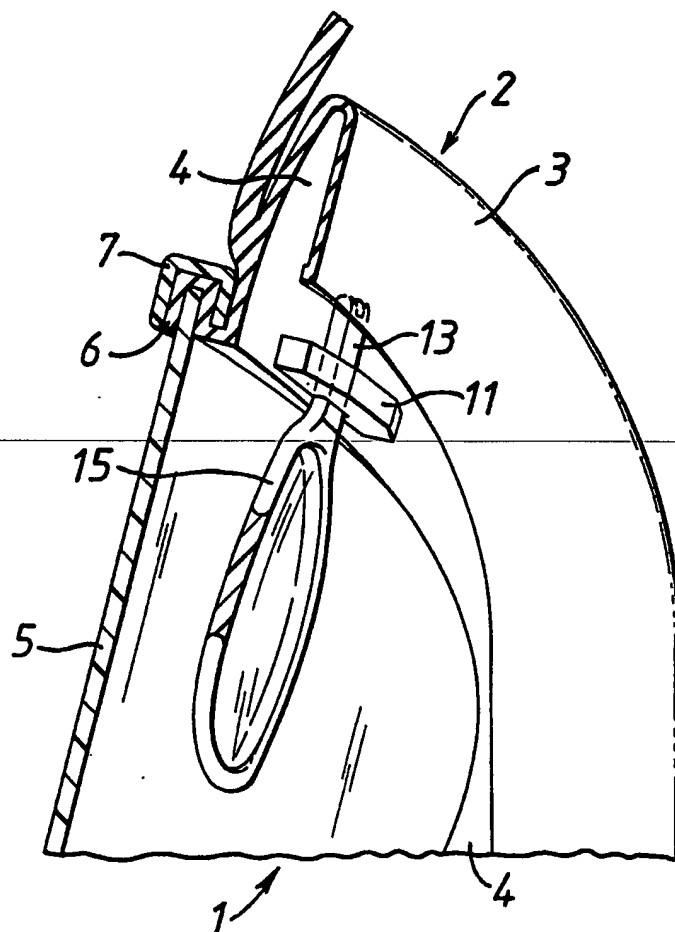
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FIG. 2.



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FIG. 3.



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SPECIFICATION

Respiratory full face mask

- 5 This invention relates to respiratory full face masks.

For many years there has been a problem with respiratory full face masks for those people who wear spectacles. The side arms of the spectacle frames prevent the flexible rubber outer mask from giving a proper seal at the points where the spectacle frames pass between the rubber outer mask and the wearer's head.

15 Many attempts have been made to overcome this difficulty by providing special spectacle frames for use with a respiratory full face mask. One such special spectacle frame has employed a short side arm with a downwardly projecting end designed to be fitted into a substantially vertical hole in a horizontal lug formed on the inner part of the rubber outer mask at the side of the visor. Although this arrangement has been used for a period

20 of the order of twenty years, it is less than satisfactory in that it is a fiddling and awkward task to fit the special spectacles into these side lugs. Proposals have been made to use special frames with a series of downward spikes or projections and it is thought that these frames have been provided in an endeavour to make it easier to fit the spectacle frames to the side lugs in a respiratory full face mask in a position where the user of the mask gets a satisfactory view through the spectacle lenses.

Proposals have also been made for other alternative arrangements to meet the problems with respiratory full face masks faced by the wearer of spectacles. One proposal has involved the use of a specially designed spectacle frame having a downward spike from the bridge portion of the spectacle frame designed to be inserted in a hole in a lug formed on the inner rubber mask between the inner mask and the visor. Difficulties occur with this arrangement in getting the spectacles into the correct position and retaining them in that position when the user is putting on the mask.

50 Inevitably, the inner rubber mask is distorted when the full face mask is put on and the position of the spectacles is liable to be changed.

The provision of spectacles outside the visor with special hinges to the full face mask results in a limitation to the field of view of the user. A still further proposal has involved the use of spectacle frames having side arms formed from thin spring steel so that the side arms may be deformed by the rubber outer mask and the rubber outer mask may still engage the wearer's head to provide the necessary seal. However, this proposal has not met the desired objective as it is found that there is still a degree of disturbance to the seal.

Accordingly, the overall problem has not hitherto been satisfactorily solved. However, the present Applicants are now proposing a respiratory full face mask having means for fitting spectacle frames easily in a position where they will not themselves be moved when the mask is put on and where they do not disturb or distort the seal of the face piece.

75 In accordance with the present invention there is provided a respiratory full face mask which includes a flexible outer face mask having an inner portion for engaging the head of the wearer to provide a seal and an outer portion with an aperture receiving and holding a visor, and means positioned on the inner side of the outer portion of the flexible outer face mask above or below the visor aperture for holding arms extending vertically from a spectacle frame.

Most advantageously, however, the means is positioned above the visor aperture for holding arms extending upwardly from the spectacle frame.

90 In the embodiment of the present invention which will be described, the means for holding the spectacle frame arms comprises a pair of flexible lugs formed integrally with the flexible outer face mask and each having a substantially vertical hole therein for receiving an upwardly extending arm of the spectacle frame. The lugs are preferably formed towards the sides of the front portion of the outer face mask at a level at which the lugs are behind the portion of the outer face mask which holds the visor. When the lugs are positioned in this way, as will be described in the ensuing description, it is surprisingly found that a spectacle frame held by upwardly extending arms inserted into the lugs is angled correctly for presentation to the eyes of the wearer of the mask.

The present invention will be better understood from the following detailed description of a preferred embodiment which is made, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of the outside of a respiratory full face mask incorporating the present invention,

Figure 2 is a view of the upper part of the inside of the respiratory full face mask of Figure 1 omitting the inner face mask and with parts of the outer face mask cut away to show the mounting of the spectacle frame therein in accordance with the present invention, and

Figure 3 is a cross-sectional view of the upper part of the respiratory full face mask of Figure 2 taken along the line III-III of that Figure.

In the drawings the same or similar parts are designated by like reference numerals.

Referring to the accompanying drawings there is indicated generally by the reference

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numeral 1, a respiratory full face mask which includes a flexible outer face mask 2 made from a suitable rubber, such as neoprene. The flexible outer face mask 2 includes an inner portion 3 (Figures 2 and 3) for engaging the wearer's head in sealing engagement, and an outer portion 4 which is formed to have an aperture therein to receive a visor 5 which is held in a visor channel 6 formed in the rim of the outer face mask which defines the aperture, by a visor frame 7.

The flexible outer face mask 1 also has an aperture 8 for connection to a gas supply, and another aperture containing a combined speech diaphragm and exhaust valve assembly 9. However, these form no part of the present invention and will not be described herein.

The respiratory full face mask 1 also includes an inner face mask 10 (Figure 1) engaging the nose of the wearer and incorporating flap valves (not shown). The inner face mask 10 has been omitted from the views which are Figures 2 and 3 for the sake of simplicity. The inner face mask 10 is entirely conventional and will not be further described herein.

The outer face mask 2 has lugs 11 and 12 positioned on the inner side of its outer portion 4. These lugs 11 and 12 are formed on that part of the inner side of the outer portion 4 of the outer face mask 2 directly behind the visor channel 6 so that the lugs 11 and 12 are on a part of the outer face mask 2 which is held firmly in position by the visor 5 and the visor frame 7.

Each lug 11, 12, has a hole therethrough which is at right angles to the length of the lug and is generally vertical. The holes are rectangular in cross-section for receiving a respective one of upwardly extending arms 13, 14 of a spectacle frame 14 as shown more particularly in Figures 2 and 3.

The spectacle frame 14 is readily inserted into position in the respiratory full face mask 1 by pushing the arms 13 and 14 into the holes in the lugs 11 and 12. As will be seen from all the Figures of the accompanying drawings, the spectacle frame 14 is then held within the respiratory full face mask in the natural position for the wearer of the mask to see through the lenses in the spectacle frame, both as regards the level or height at which the spectacle frame is held and the angle at which the frame is presented to the eyes of the wearer of the mask.

In addition to being readily positioned by simply sliding the arms 13 and 14 into the holes in the lugs 11 and 12, the spectacle frame is firmly held within the lugs which are so positioned and shaped that the arms 13 and 14 may be pushed fully into the holes in the lugs 11 and 12 as may be clearly seen in Figures 2 and 3. Furthermore, because the lugs 11 and 12 are mounted on the inside of the outer portion 4 of the outer face mask

immediately behind the visor channel 6 and visor frame 7 there is no risk of displacement of the spectacle frame when the mask is put on.

In the alternative embodiment of the invention in which the means for holding the spectacle frame arms is positioned below the visor aperture, the means is preferably located on the outer face mask immediately behind the visor channel 6 and visor frame 7. The means is thus mounted on a firm base and risk of displacement of the spectacle frame during use of the mask is virtually eliminated even though the downwardly extending arms from the spectacle frame have to be much longer than in the preferred embodiment described with reference to the drawings.

CLAIMS

1. A respiratory full face mask which includes a flexible outer face mask having an inner portion for engaging the head of the wearer to provide a seal and an outer portion with an aperture receiving and holding a visor, and means positioned on the inner side of the outer portion of the flexible outer face mask above or below the visor aperture for holding arms extending vertically from a spectacle frame.

2. A mask according to Claim 1, in which the means is positioned on the inner side of the outer portion of the flexible outer face mask above the visor aperture for holding arms extending upwardly from the spectacle frame.

3. A mask according to Claim 1 or Claim 2, in which the means comprises a pair of flexible lugs formed integrally with the flexible outer face mask and each having a substantially vertical hole therein for receiving an upwardly extending arm of the spectacle frame.

4. A mask according to Claim 3, in which each flexible lug is nearer to the side of the mask than the centre of the visor for receiving a vertical arm extending from a position of a spectacle frame near to the outside of a lens frame.

5. A mask according to any one of Claims 1 to 4, in which the means is positioned on the outer portion of the flexible outer face mask behind the part of the outer face mask which holds the visor.

6. A respiratory full face mask substantially as hereinbefore described with reference to the accompanying drawings.

7. A respiratory full face mask according to any one of the preceding claims, further including a spectacle frame having vertically extending arms held by the said means.